A NEW SPECIES OF *GNATHOTHLIBUS* WALLENGREN (LEPIDOPTERA: SPHINGIDAE) FROM VANUATU

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Abstract

Gnathothlibus saccoi sp. nov., from Vanuatu, is described and figured. Characters are provided to distinguish it from the sympatric *G. erotus* (Cramer).

Introduction

Five species of *Gnathothlibus* Wallengren have been described from the Asia-Pacific region. D'Abrera (1987) recorded *G. erotus* (Cramer) from Sri Lanka east to Tahiti, *G. meeki* (Rothschild & Jordan) and *G. heliodes* (Meyrick) from New Guinea and *G. brendelli* Hayes from Sulawesi. *G. dabrera* Eitschberger was also recorded from Sulawesi by Eitschberger (1999). Species in this genus are easily recognised by their relatively plain, reddish-brown forewings and orange hindwings with terminal black bands.

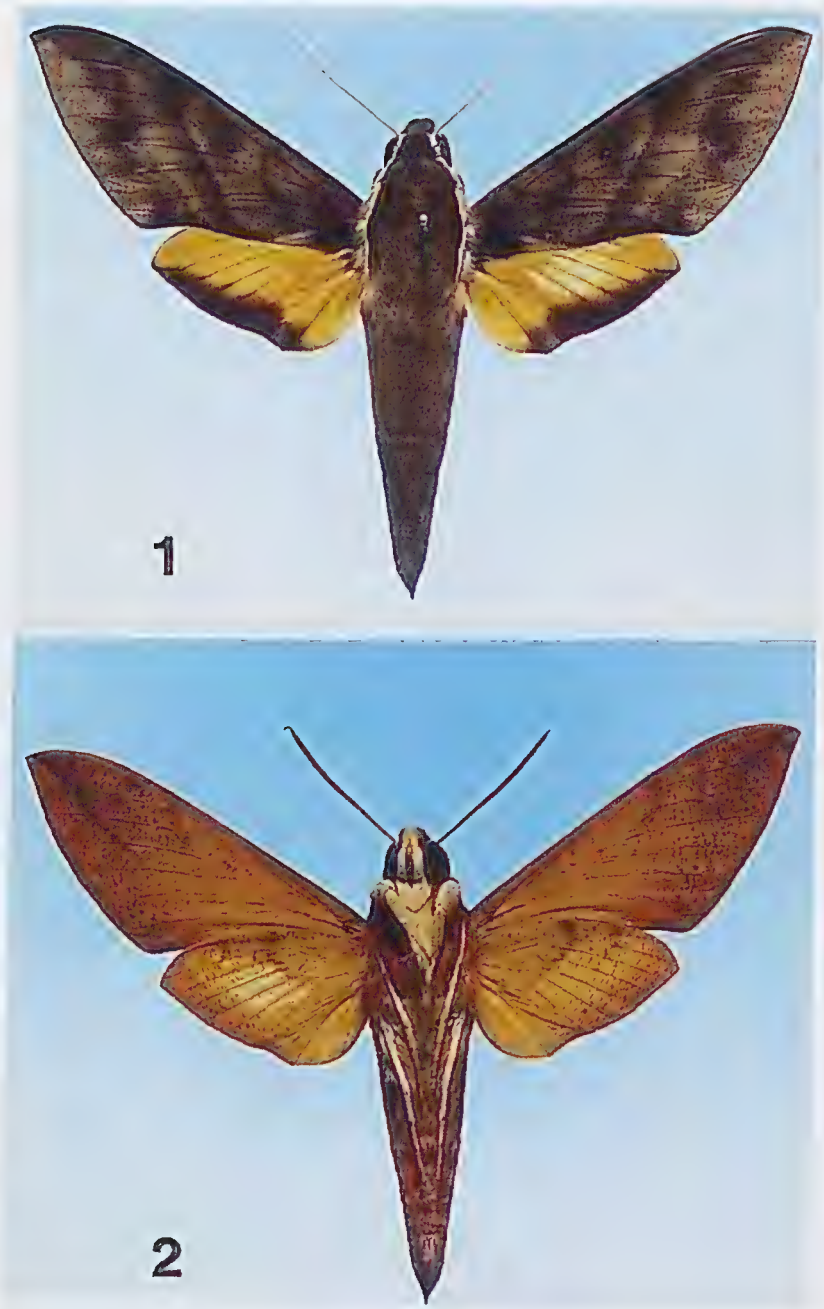
An undescribed species, clearly different from *G. erotus*, was collected in Vanuatu on the northern islands of Espiritu Santo and Ambrym, during 1987, 1988 and 1989. It is described below. Placement of this new species in *Gnathothlibus* complies with the wing colouration noted above and the generic diagnosis given by D'Abrera (1987).

Gnathothlibus saccoi sp. nov.

(Figs 1-5, 7)

Types. *Holotype* ♂, VANUATU: Olal Mission area, north Ambrym Is., 23.ix.1989, R.B. Lachlan (in Australian National Insect Collection, CSIRO, Canberra [ANIC]). *Paratypes*: 1 ♂, 1 ♀, Sesivi Catholic Mission, south-west Ambrym Is, 29.ix.1989, R.B. Lachlan (RBL); 3 ♂♂, 4 ♀♀, Luganville, Espiritu Santo I., 21-24.xii.1987, 1.i.1988, R.B. Lachlan (RBL); 7 ♂♂, 2 ♀♀, Port Olry, Espiritu Santo I., 1, 3, 5, 7, 13, 16, 21.i.1988, R.B. Lachlan (RBL); 43 ♂♂, 41 ♀♀, Olal Mission area, north Ambrym Is., 24.xii.1988, 7, 9, 11, 12.i.1989, 19-28.ix.1989, R.B.Lachlan (in ANIC, Australian Museum, Sydney and RBL collection).

Description. Male (Figs 1-2). Antennae creamy-brown above, dark brown below; palpi greenish-brown above, contrasting off-white below; upper surface of head, thorax and abdomen uniform greenish-brown; small dark median spot on prothorax; thin lateral creamy-brown stripe, with upper edge dark, from base of antenna to posterior of thorax. Thorax ventrally with dense reddish-brown pilosity laterally and wide median creamy-brown band to base of metathorax. Abdominal segments laterally each with reddish-brown posterior margin contrasting with greenish-brown ground colour; abdomen with five small lateral black spots, surrounded by white. Fore tibiae creamy-brown above, reddish-brown below, covered in very long hair scales; proximal three segments of fore tarsi covered in hair scales, shortest on distal segment, longest on proximal segment.

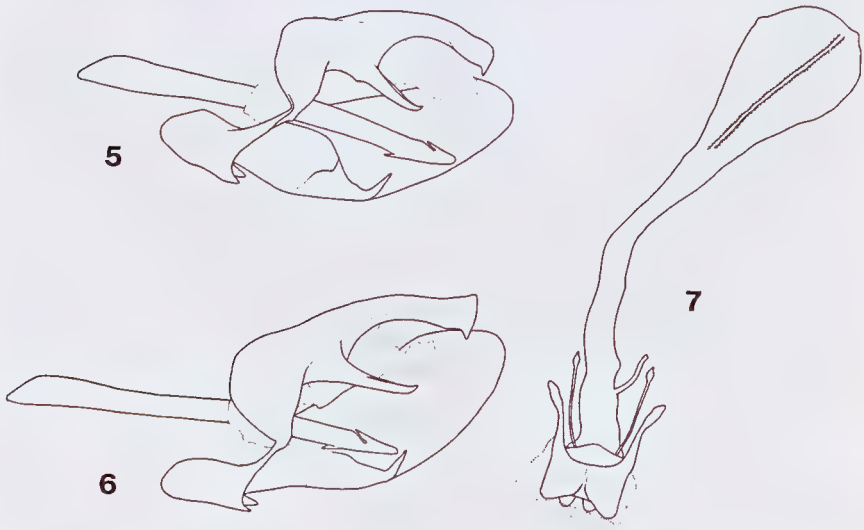


Figs 1-2. *Gnathothlibus saccoi*, holotype male. (1) upperside; (2) underside.

Figs 3-4. *Gnathothlibus saccoi*, paratype female. (3) upperside; (4) underside.

Forewing length 42-49 mm. Forewing upperside as in Fig. 1; ground colour greenish-brown with darker markings; small black stigma with light centre at end of discal cell; irregular, light olive-green marginal band from apex to tornus, interrupted noticeably by darker markings distally at vein M_3; lighter medial transverse band, containing stigma, edged basally by thin dark line curved distally and a prominent dark, mostly straight, post median line; a short, irregular thin dark subbasal line, curved distally from costa to the dark basal patch below vein 1A+2A. Forewing underside as in Fig. 2; ground colour burnt orange, lighter basad; speckled with dark brown distally; stigma faint; a dark, subterminal line angled inwardly from apex to vein M_2, becoming faint and irregular from M_2 to the tornus; two darkish median lines from costa to vein M_1, becoming indistinct towards inner margin, these median lines are faint or absent in some specimens. Retinaculum dark.

Hindwing upperside as in Fig. 1; ground colour orange; a slightly variable, broad, dark brown terminal band from apex to tornus, thinnest at apex; inner margin of band irregular and suffused with orange scales; dark brown scales extend slightly basally along veins M_1 to CuA_2 giving a spiked appearance in most specimens. Hindwing underside as in Fig. 2; ground colour lighter than that of forewing; speckled with dark brown; marginal area darker from apex to tornus; median darkish band, thickest at costa, curving proximad from costa to vein 1A+2A.



Figs 5-7. Male and female genitalia of *Gnathothlibus* spp. (5-6) Male genitalia *in situ* but with left valva removed, lateral view: (5) *G. saccoi*, paratype, north Ambrym I.; (6) *G. erotus eras*, Julatten, north Queensland. (7) Female genitalia, ventral view (bulla seminalis detached), *G. saccoi* paratype, north Ambrym I.

Male genitalia (Fig. 5). Uncal lobe in lateral view long, slender, parallel-sided, gently arched, distally rounded with small ventral tooth; gnathos straight, gradually tapering to a small upturned point; valva tending parallel-sided, distally rounded; sacculus well developed, much broader than base of harpe; harpe robust, distal end spine-like, upturned; aedeagus in lateral view with distal end tapered to a rounded apex, the sclerotization in vicinity of vesical opening producing a backwardly directed fishhook-like barb dorsally, ventrally with a similar barb a little proximad of dorsal barb.

Female (Figs 3-4). Head and tegulae dark brown. Median area of thorax and abdomen above uniform, medium brown. Abdomen below reddish-brown. Fore tarsi without long hair scales; tibiae with long hair scales suffused with brown. Forewing length 51-57 mm. Forewing upperside similar to male; ground colour and pattern in shades of brown, lacking greenish tinge of male. Forewing underside similar to male but ground colour reddish-brown; stigma not visible; basally yellowish-cream on many specimens. Hindwing upperside similar to male but dark brown terminal band broader with its inner margin straighter and suffused with orange scales. Hindwing underside with dark brown specks less apparent and with yellowish streak along and just under vein 1A+2A.

Female genitalia (Fig. 7). Apophyses posteriores long, very slender, minutely bulbous subapically; apophyses anteriores spatulate on distal half; signum very narrow and long extending nearly full length of corpus bursae, consisting of a pair of closely-parallel lines of cornuti.

Etymology. Named after Father Albert Sacco, a Marist Missionary in Vanuatu, in honour of his selfless service to the people of Vanuatu since 1954 and his work in documenting the butterflies of the archipelago over this time.

Distribution. At present *G. saccoi* is known only from the islands of Espiritu Santo and Ambrym in the north of the Vanuatu archipelago. Specimens were first collected in December 1987 and January 1988 on the island of Espiritu Santo, the largest island in Vanuatu. Others were later collected in January and September 1989 on the island of Ambrym, 110 km to the southeast of Espiritu Santo. The species was common at both localities. Light trapping was not carried out on the four large neighbouring islands between Espiritu Santo and Ambrym, but it is highly likely the species will occur on the islands of Malekula, Ambae, Maewo and Pentecost. Despite intensive collecting over several years on the islands of Efate in central Vanuatu and Tanna in southern Vanuatu, no specimens were recorded, suggesting it may be confined to the tropical north of the archipelago.

Discussion

Gnathothlibus saccoi most closely resembles *G. erotus eras* (Boisduval), a common species occurring with *G. saccoi* at both known localities. *G. erotus eras* is widespread from the Australian region to Tahiti (D'Abrera 1987) and is the only other species of *Gnathothlibus* recorded from the Pacific islands.

G. saccoi is easily distinguished from *G. erotus* by its larger size; the female in particular has a very robust appearance. Both sexes of *G. saccoi* have broader wings than *G. erotus* and prominent forewing markings similar to those of *G. meeki* and *G. heliodes*. The forewing stigma on *G. saccoi* is more noticeable than on *G. erotus* and the dark brown terminal band on the hindwing is much broader in both sexes than that found on *G. erotus*. The retinaculum on *G. saccoi* always appears as a dark spot; on *G. erotus eras* it is yellow-brown.

The male genitalia of *G. saccoi* (Fig. 5) differ from those of *G. erotus* (Fig. 6) in having the apex of the uncus in lateral view dorsally rounded instead of crested, the tegumen narrower in lateral view, the upper margin of each valva nearly straight (clearly incurved in *G. erotus*) and the sacculus of each valva much more developed and considerably broader than the base of the harpe (about as wide as the base of the harpe in *G. erotus*).

Female genitalia of *G. saccoi* differ from those of *G. erotus* in having a subapical bulbous swelling on the apophyses posteriores and a slightly longer signum that nearly reaches the distal end of the corpus bursae.

Acknowledgments

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